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# The REC Market Helps States Meet Clean Air Requirements

*A Maryland county is purchasing wind energy to combat ground-level ozone pollution.*

BY ANN ELSEN

A local government in Maryland recently found an innovative way to use renewable energy certificates (REC) to improve regional air quality. This approach has created a new market driver for wind power and may foster increased wind development in areas faced with serious air pollution problems.

Montgomery County, Md., borders Washington, D.C., and is located within a region that has an amount of ground-level ozone pollution in excess of federal standards. On a hot summer day, when air pollution reaches the "code red" level, breathing heavily for half an hour can have health effects similar to smoking a pack of cigarettes. State environmental officials struggle to meet federal schedules for "attainment" of healthy air quality standards and to come up with comprehensive plans for achieving emissions reductions.

In order to avoid sanctions, including the possible loss of federal transportation dollars, the region must reduce emissions of the precursors of ground-level ozone, namely oxides of nitrogen (NOx) and volatile organic compounds (VOC). The formal plan for achieving better air quality is called the State Implementation Plan, or SIP.

Many of the measures that make up a SIP are very expensive (such as the purchase of alternative fueled vehicle fleets and infrastructure) or produce uncertain results (such as the installation of bicycle racks on transit buses to encourage bicycle commuting). Renewable energy can be highly cost-effective as an approach to air quality improvement, when considered within the context of a SIP.

This is because non-emitting renewable energy sources can partially offset the emissions of electricity generators that burn fossil fuels. Emissions from these power plants are delivered on prevailing winds to the Washington metropolitan region.

A study conducted by the University of Maryland, in partnership with the Maryland Department of Environment, identified patterns of air emissions drifting into the Washington metropolitan region from distant areas. Much of the NOx that leads to the formation of ground-level ozone in the local area of Montgomery County is produced in a geographic region west of the state of Maryland in which a number of large demand-scheduled, coal-burning electric power plants are located.

When Montgomery County began its search for an environmentally

benign energy source, a wind power project was proposed for development in the mountains of West Virginia, within the geographic area defined by the University of Maryland study as a source of local air quality problems.

In order for the West Virginia wind project to obtain financing necessary to move forward, commitments were needed from large customers to purchase RECs in sufficient volume to provide a reliable secondary revenue stream. Such "voluntary" purchases are currently a leading driver of wind energy development in the Mid-Atlantic region. The Montgomery County Electricity Buying Group is a customer of sufficient size that a REC purchase equivalent to 5% of its electricity usage would consume the output of 10 of the 44 wind turbines proposed for West Virginia.

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Montgomery County proposed a wind purchase as a “voluntary control measure” to the regional organization coordinating the development of SIPs, the Metropolitan Washington Council of Governments. However, wind energy had never before been included in a SIP, and skepticism existed at every level as to the acceptability of the measure by the U.S. Environmental Protection Agency (EPA). Were it not for the efforts of a number of dedicated individuals and organizations, the wind purchase idea would have died in committee.

The Maryland Department of Environment (MDE) made an excellent case for quantification of emissions offsets from upwind facilities at a meeting of the regional Council of Governments, and offered to allocate NOx “allowances” from the state of Maryland’s NOx set-aside program to the wind energy purchase. Under this scenario, a number of NOx allowances would be retired from the state’s emissions budget commensurate with the amount of wind energy generated for the Montgomery County Electricity Buying Group during the ozone season (May through September of each year).

In support of the EPA, a group of consultants from Resource Systems Group Inc. and George Washington University Law School and Environmental Resources Trust Inc. developed a methodology for tracking the dispatch of electricity power plants close to the wind energy facility in West Virginia, and identifying specific emissions reductions resulting from wind energy production.

At the same time, this team served as an information conduit to insure that the EPA Office of Air and Radiation and EPA Region III were kept fully informed of the progress of the proposal to include a wind REC purchase in the Maryland SIP. The team worked closely with Montgomery County and with EPA to identify possible hurdles and overcome them.

Success was finally assured when the EPA Office of Air and Radiation published a draft guidance document

Figure 1

## Maryland Wind Energy Purchasing Group

*These Montgomery County agencies purchase RECs as an air quality measure.*

Agency/Jurisdiction	Yearly kWh Wind Power
Montgomery County Government	7,397,796
Montgomery County Public Schools	9,818,022
Montgomery College	1,286,259
Maryland National Capital Park & Planning Commission	2,542,190
Montgomery County Housing Opportunities Commission	1,226,649
Washington Suburban Sanitary Commission	10,500,000
Prince George's County Government	4,270,276
Rockville, MD	760,272
Gaithersburg, MD	351,349
Takoma Park, MD	83,490
College Park, MD	74,041
Rockville Housing Authority	51,411
Kensington, MD	19,114
Chevy Chase Village, MD	14,344
Somerset, MD	8,753
Glenn Echo, MD	4,088
Chevy Chase Sect. 5	1,979
Laytonsville, MD	1,747
<b>Total</b>	<b>38,411,780</b>

Source: Montgomery County Department of Environmental Protection

that encouraged the use of renewable energy in SIPs and cited the Montgomery County purchase as an example for other jurisdictions to follow.

While the draft did not become finalized until August 2004, the release of this early version was sufficient to convince EPA Region III, the Metropolitan Washington Council of Governments, the Maryland Department of Environment and Montgomery County officials that the wind purchase was a viable SIP measure. Including the wind REC purchase in the SIP then provided the financial justification for the expenditure of scarce operating budget dollars for the purchase of RECs.

### RECs purchase finalized

On May 7, 2004, the Montgomery County Electricity Buying Group entered a contract with Washington Gas Energy Services for the purchase of wind energy RECs in an amount equal to 5% of the group’s annual electricity consumption (on a kilo-

watt-hour basis). The total amount of the purchase is equal to 38,411,780 kWh per year, or 38,400 RECs.

The contract term is two years. The price is slightly less than 1.5 cents per kWh, or \$14.98 per REC.

The conditions of the contract stipulate that the RECs must come from a facility located within a geographic region comprising western Maryland and West Virginia. In addition, all environmental attributes, including potential allowances or tradable certificates, must transfer to the Buying Group as a component of the REC purchase. This includes any attributes or allowances that did not exist at the time of contract execution, but may become available during the term of the contract.

The REC purchase exceeds the county’s commitment to buy clean or green energy under the EPA’s Green Power Partnership program. The purchase is also a major step toward meeting Montgomery County’s goals for the reduction of greenhouse gas

emissions that contribute to global climate change.

Montgomery County continues to actively address state policy issues that affect the future of such voluntary purchases of renewable power. In Maryland, like much of the Mid-Atlantic region, regulators are working to implement renewable portfolio standards (RPS) that will foster the development of renewable power rather than stifling it. A clear separation of voluntary and compliance markets will be needed to insure that voluntary purchases are additive to RPS obligations.

A requirement that RECs be retired upon sale to end-users protects the existing voluntary markets

in several states. Without such a protection in place, customers like Montgomery County will be forced to withdraw from the voluntary market, due to the unfeasibility of justifying expenditures for purchases that merely subsidize a compliance requirement for the electricity supplier.

In addition, if the Montgomery County purchase becomes applicable toward the supplier's RPS requirement, the "surplus" aspect of the purchase (as defined by EPA) will be lost, along with eligibility established by EPA for inclusion in a SIP as a control measure. Maryland is still wrestling with this issue, as are a number of states that hope to maintain a healthy market for voluntary REC

purchases while implementing an effective RPS.

#### **National precedent**

Montgomery County set a national precedent by demonstrating the benefits of renewable energy in meeting federal regulatory requirements for air quality. The link between wind power generation and emissions of air pollutants is presented in a quantifiable and verifiable format, and is included in the regional plan for meeting the requirements of the Clean Air Act.

When the REC purchase was made, it was the largest local government purchase of wind power in the U.S., and Montgomery County received considerable recognition for this effort. 